REMARKS

Claims 1-22 are pending in the present application. By this Amendment, claims 23-41 are cancelled without prejudice or disclaimer to their future prosecution in a divisional application, and the specification and drawings are amended. Additionally, claims 2-22 are amended solely for the purposes of clarity and precision, and are not believed to be narrowing amendments. Applicant respectfully requests withdrawal of the rejection, and allowance of the claims.

I. Formalities, objections

Applicant thanks the Examiner for acknowledgement of foreign priority based on Japanese application No. 2000-267449, filed on September 4, 1999. Also, Applicant thanks the Examiner for acknowledging election of Group I, and indicating the withdrawal of claims 23-41. Accordingly, Applicant has cancelled claims 23-41 without prejudice or disclaimer to their prosecution in a future divisional application.

The Examiner objects to the drawings due to various alleged informalities. As shown in the foregoing amendments and attached Request for Approval of Proposed Drawing Corrections, Applicant has amended the application to overcome the Examiner's objections to the drawings. With respect to the objection to reference character 25 of Figure 1 not being in the specification, Applicant directs the Examiner to application page 25, lines 8-16, which discloses the aforementioned reference character 25. Therefore, Applicant respectfully requests withdrawal of the objections.

II. Claims 2-22 are in proper condition under 35 U.S.C. § 112, 2nd paragraph

Claims 2-22 stand rejected under 35 U.S.C. § 112, 2nd paragraph due to various instances of alleged indefiniteness. As shown in the foregoing amendments, Applicant has amended the claims to overcome the Examiner's objections. With respect to claims 5-8, Applicant notes that as recited in independent claim 1, the probes are fixed on a substrate, whereas claims 5-8 recite electrophoresis in a gel adjacent to, and in contact with, the substrate. Applicant respectfully submits that the substrate is separate and distinct from the gel, as recited in claims 5-8.

Therefore, Applicant respectfully submits that the claims are in proper condition under 35 U.S.C. § 112, 2nd paragraph. Accordingly, Applicant respectfully requests withdrawal of the rejection, and allowance of the claims.

III. Claims 1-18 and 22 are novel

Claims 1-18 and 22 stand rejected due to alleged anticipation under 35 U.S.C. § 102(b) over Ullman et al. (U.S. Patent No. 6,103,537, hereafter "Ullman"). Applicant respectfully submits that Ullman fails to disclose all of the claimed combinations of features, as required for an anticipation rejection under §102(b). Accordingly, Applicant respectfully requests withdrawal of the rejection, and allowance of the claims.

The present invention relates to a biochemical analyzing apparatus and method. As illustrated in application Figure 1, lasers 1, 2, 3 emit at various wavelengths, and through a series of mirrors 6, 7, 8, 16, generate a beam 4 that passes through a hole 17 in a mirror and a lens 25, and then arrives at an analysis unit 21 positioned on a stage 20. As illustrated in application

Figure 2, the analysis unit 21 includes a micro-array 24 (i.e., substrate) connected to an adjacent gel layer 23, through which a current 22 is run to cause fractionation of spots 26 on the array 24, and in close contact with the gel layer 23, as illustrated in application Figure 3.

The resulting emission 25 is reflected by a mirror 19 to a filter unit 27 having a plurality of filters 28a-28d that can read emissions of different wavelengths. The filtered output is transmitted through a confocal system 29-31, for detection by a photomultiplier 33 and analysis in a processing unit 35. Accordingly, the noise is reduced and the analysis quality is improved.

Ullman discloses capillary assays involving separation of free and bound species. As disclosed at column 4, lines 32-51, Ullman discloses a specific binding pair in a first complex, followed by use of electroseparation carried out in channels formed on a glass surface. A determination is then made for the detected target. Use of electrophoresis, hybridization, a gel and a fluorescent dye are also disclosed. However, Applicant respectfully submits that Ullman does not disclose probes spotted on a substrate, forming a plurality of spots, or that the spotting can occur one-dimensionally or two-dimensionally. Further, Applicant respectfully submits that Ullman does not disclose generation of a chemiluminescent emission.

Applicant respectfully submits that Ullman fails to disclose (or even suggest) all of the claimed combinations of features. For example, but not by way of limitation, Applicant respectfully submits that Ullman fails to disclose or suggest fixing probes selected in advance on a substrate, as recited in independent claim 1.

Dependent claims 2-18 and 22 depend from independent claim 1. Applicant respectfully submits that the dependent claims are allowable for at least the same reasons as independent claim 1. Additionally, Applicant respectfully submits that Ullman fails to disclose that (a) the probes are spotted on the substrate and fixed thereon, as recited in dependent claim 9, (b) the spotting is one-dimensional as recited in dependent claim 10, or (c) the spotting is two-dimensional, as recited in dependent claim 11. Further, Applicant respectfully submits that Ullman fails to disclose that the labeling of the target occurs prior to the binding step, as recited in dependent claims 14 and 17, or that the labeling of the target occurs after the fractionating step, as recited in dependent claims 15 and 18.

Therefore, Applicant respectfully requests withdrawal of the rejection, and allowance of the claims.

IV. Claims 19-21 would not have been obvious

Claims 19-21 stand rejected due to alleged obviousness under 35 U.S.C. § 103(a) over Ullman in view of Hassard et al. (U.S. Patent No. 6,103,533, hereafter "Hassard"). Applicant respectfully submits that the Examiner's proposed combination of references fails to disclose or suggest all of the claimed combinations of features, as required for a prima facie rejection under §103. Therefore, Applicant respectfully requests withdrawal of the rejection, and allowance of the claims.

Claims 19-21 depend from independent claim 1. Applicant respectfully submits that dependent claims 19-21 are allowable for at least the same reasons as discussed above with

respect to independent claim 1, as well as the additional reasons discussed in greater detail below.

Hassard discloses a molecular imaging method. At column 3, lines 55-67, Hassard discloses two-dimensional imaging and three-dimensional imaging. However, Applicant respectfully submits that Hassard does not disclose a plurality of spot-like circular membrane filters.

Applicant respectfully submits that the Examiner's proposed combination of references fails to disclose or suggest all of the claimed combinations of features. For example, but not by way of limitation, Applicant also submits that the proposed combination of references fails to disclose or suggest that light released from the fractionated targets is detected at a plurality of spot-like circular membrane filters, as recited in dependent claim 20.

As acknowledged by the Examiner, Ullman fails to disclose two-dimensional scanning and three-dimensional scanning of the target, as recited in claims 19 and 21, respectively. The Examiner proposes to cure that deficiency by combining Hassard and Ullman. However, Applicant respectfully submits that the proposed combination of references is improper, because the references teach away from one another. For example, but not by way of limitation, Hassard teaches using only an ultraviolet light, and teaches away from use of fluorescence, chemiluminescent emitters, and the like at column 1, lines 9-12.

Accordingly, because the references teach away from each other, Applicant respectfully submits that the proposed combination of references is improper, and should be withdrawn.

Therefore, Applicant respectfully requests withdrawal of the rejection, and allowance of the claims.

V. Conclusion

In view of the above, reconsideration and allowance of this application are now believed to be in order, and such actions are hereby solicited. If any points remain in issue which the Examiner feels may be best resolved through a personal or telephone interview, the Examiner is kindly requested to contact the undersigned at the telephone number listed below.

The USPTO is directed and authorized to charge all required fees, except for the Issue Fee and the Publication Fee, to Deposit Account No. 19-4880. Please also credit any overpayments to said Deposit Account.

Respectfully submitted,

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APPENDIX

VERSION WITH MARKINGS TO SHOW CHANGES MADE

IN THE SPECIFICATION:

The specification is changed as follows:

Page 20, first full paragraph:

[Figure 12 shows a]A gel support or a transfer support carrying electrophoresis data of a fluorescent dye or a stimulable phosphor sheet carrying autoradiographic data regarding locational information of a radioactive labeling substance as a biochemical analysis unit 21 is also provided.

IN THE CLAIMS:

Claims 23-41 are canceled.

The claims are amended as follows:

2. (Amended) [A]The biochemical analyzing method in accordance with Claim 1, wherein the target is bound with the probes using hybridization.

3. (Amended) [A]The biochemical analyzing method in accordance with Claim 1, wherein the respective captured targets are electrophoresed, thereby being fractionated.

4. (Amended) [A]The biochemical analyzing method in accordance with Claim 3, wherein the respective captured targets are electrophoresed in a direction at an angle with the surface of the substrate, thereby being fractionated.

5. (Amended) [A]The biochemical analyzing method in accordance with Claim 4, wherein the respective captured targets are electrophoresed in gel adjacent and in contact with to the substrate, thereby being fractionated.

6. (Amended) [A]The biochemical analyzing method in accordance with Claim 5, wherein the respective captured targets are electrophoresed in a block of gel adjacent to the substrate, thereby being fractionated.

7. (Amended) [A]The biochemical analyzing method in accordance with Claim 4, wherein the respective captured targets are electrophoresed in a plurality of capillaries adjacent to and in contact with the substrate, thereby being fractionated.

8. (Amended) [A]The biochemical analyzing method in accordance with Claim 7, wherein the plurality of capillaries are filled with a material capable of forming a membrane filter or a gel.

9. (Amended) [A]The biochemical analyzing method in accordance with Claim 1, wherein the probes are spotted on the substrate and fixed thereon.

10. (Amended) [A]The biochemical analyzing method in accordance with Claim 9, wherein the probes are one-dimensionally spotted on the substrate to form a plurality of spots and are fixed thereon.

11. (Amended) [A]The biochemical analyzing method in accordance with Claim 9, wherein the probes are two-dimensionally spotted on the substrate to form a plurality of spots and are fixed thereon.

12. (Amended) [A]The biochemical analyzing method in accordance with Claim 1, wherein the target consists of a gene.

13. (Amended) [A]The biochemical analyzing method in accordance with Claim 1 which further comprises a step of labeling the target with a fluorescent substance.

14. (Amended) [A]The biochemical analyzing method in accordance with Claim 13, wherein the target is labeled with the fluorescent substance prior to binding the target with the probes.

15. (Amended) [A]The biochemical analyzing method in accordance with Claim 13, wherein the target is labeled with the fluorescent substance after the respective targets were fractionated.

16. (Amended) [A]The biochemical analyzing method in accordance with Claim 1 which further comprises a step of labeling the target with a labeling substance which generates chemiluminescent emission when it contacts a chemiluminescent substrate.

17. (Amended) [A]The biochemical analyzing method in accordance with Claim 16, wherein the [target is labeled with a labeling substance which generates chemiluminescent emission when it contacts a chemiluminescent substrate]step of labeling occurs prior to said binding [the target with the probes]step.

18. (Amended) [A]The biochemical analyzing method in accordance with Claim 16, wherein the [target is labeled with a labeling substance which generates chemiluminescent

emission when it contacts a chemiluminescent substrate]step of labeling occurs after the [respective targets were fractionated]fractionating step.

19. (Amended) [A]The biochemical analyzing method in accordance with Claim 10, wherein the fractionated targets are two-dimensionally scanned and light released from the targets is detected, thereby performing quantitative analysis.

20. (Amended) [A]The biochemical analyzing method in accordance with Claim 10, wherein light released from the fractionated targets is [face-like] detected using an area sensor and quantitative analysis is performed.

21. (Amended) [A]The biochemical analyzing method in accordance with Claim 11, wherein the fractionated targets are three-dimensionally scanned and light released from the targets is detected, thereby performing quantitative analysis.

22. (Amended) [A]The biochemical analyzing method in accordance with Claim 3, wherein targets electrophoresed to positions in accordance with the kinds of the targets are quantified and analyzed.